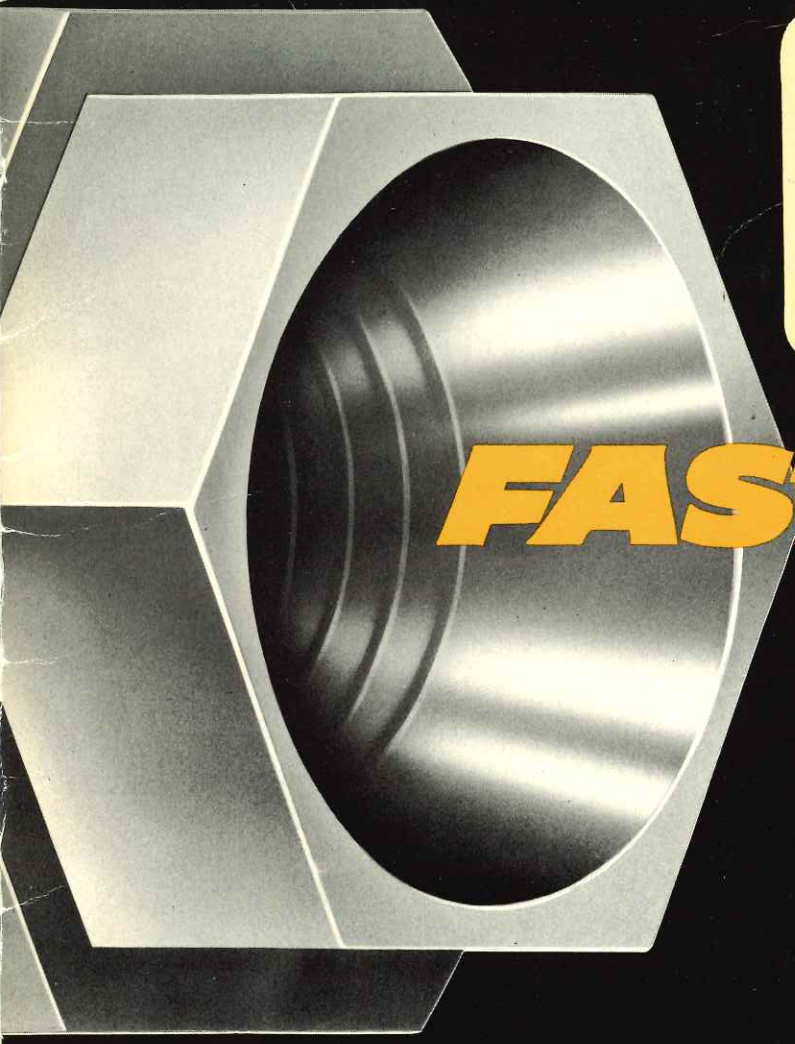
D8-397

E • RELIABILITY • STOCK



GRIPCO®

FASTENERS

Refer to the enclosed sheet
for listing of:
REPRESENTATIVES
WAREHOUSES
DISTRIBUTORS
in your area

GRIP NUT Company

For representatives and phone numbers,
consult yellow pages of phone book under GRIPCO.

SOUTH WHITLEY, INDIANA
Phone 723-5111

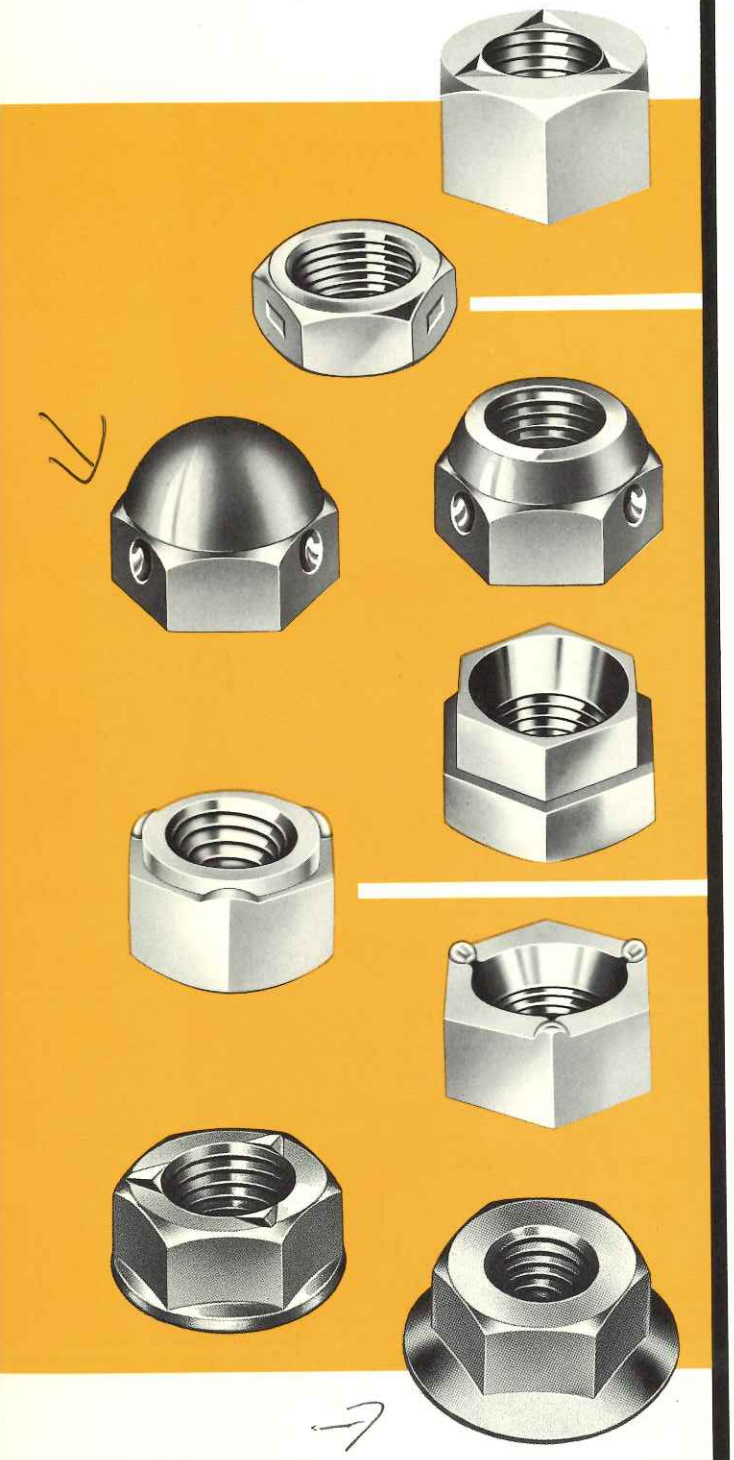
A subsidiary of
HELI-COIL CORPORATION
Danbury, Connecticut

FEB 17, 1964

GRIPCO®

Bulletin 161-F 2/17/64

LOCK NUTS • CLINCH NUTS WELD NUTS • SPECIAL NUTS SEMI-FINISHED NUTS



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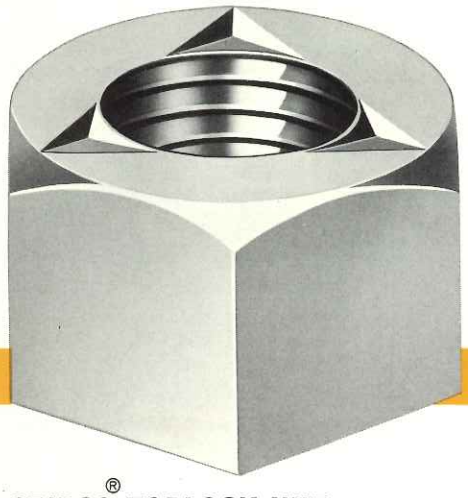
GRIPCO® TOPLOCK NUT*

The Gripco® Toplock Nut is a low cost, all metal, prevailing torque lock nut. The controlled patented deflection of the top threads 3 or 6 point gives a uniform locking torque. It eliminates the necessity for locking devices such as cotter pins, double nutting and lock washers. Production is simplified, manufacturing and maintenance costs are lowered and durability of manufactured products improved.



GRIPCO® TOPLOCK NUT

3 deflections for small size nuts
6 deflections for large size nuts

Single Chamfer Washer Face to standard nut dimensions

GRIPCO® TOPLOCK JAM NUT

Single Chamfer Washer Face. For applications subjected to shearing stresses, where strength of full nut is not required.

GRIPCO® TOPLOCK HI NUT

Single Chamfer Washer Face. For applications requiring nuts with greater thread strength than nuts of standard thickness.

GRIPCO® TOPLOCK MACHINE SCREW NUT

Manufactured to the same dimensions as standard double chamfer machine screw nuts.

Locking Ability —

Stock Gripco Toplock Nuts are tapped to UN-2B to lock on standard commercial bolts. Seating of the nut is not necessary for locking action. The nut will lock on the bolt when a minimum of one to two bolt threads extend beyond the top of the nut. Special light or heavy locking torque can be supplied for specific applications.

Re-Usability —

Satisfactory locking torque is maintained through repeated applications. See page 16 for locking torque specifications.

Availability —

Available from stock in low carbon steel, in all sizes. See dimension tables on page 4. Nuts of medium carbon steel, brass, aluminum, stainless steel and other metals can also be supplied but are not normal stock items. Steel square nuts available to special order.

Dimensions —

Stock nuts are manufactured to the same dimensions as standard Finished and Heavy Nuts, Full and Jam. The Gripco Patented Toplocking feature can be incorporated into many special type or dimensioned nuts without change of design or dimensions.

*PATENTED

See reverse side for tables

GRIP NUT COMPANY
Subsidiary of Heli-Coil Corporation • South Whitley, Indiana

GRIPCO® toplock nuts

FINISHED HEXAGON SERIES

SIZE	STEEL PART NO.	SIZE	STEEL PART NO.	full nuts WIDTH	full nuts HEIGHT	full nuts WEIGHT PER M	full nuts NUMBER IN CTN.	jam nuts WIDTH	jam nuts HEIGHT	jam nuts WEIGHT PER M	jam nuts NUMBER IN CTN.
1/4-20	TLF-1420-S	1/4-28	TLF-1428-S	7/16	7/32	7.2	20,000	7/16	5/32	5.3	28,000
5/16-18	TLF-5618-S	5/16-24	TLF-5624-S	1/2	17/64	10.6	14,000	1/2	3/16	7.6	18,000
3/8-16	TLF-3816-S	3/8-24	TLF-3824-S	9/16	21/64	15.3	8,500	9/16	7/32	10.3	10,500
7/16-14	TLF-7614-S	7/16-20	TLF-7620-S	11/16	3/8	27.8	6,000	11/16	1/4	18.4	9,000
1/2-13	TLF-1213-S	1/2-20	TLF-1220-S	3/4	7/16	36.0	5,000	3/4	5/16	25.9	8,000
9/16-12	TLF-9612-S	9/16-18	TLF-9618-S	7/8	31/64	56.2	3,300	7/8	5/16	36.7	5,000
5/8-11	TLF-5811-S	5/8-18	TLF-5818-S	15/16	35/64	69.2	2,500	15/16	3/8	48.2	4,000
3/4-10	TLF-3410-S	3/4-16	TLF-3416-S	1 1/8	41/64	127	1,500	1 1/8	27/64	85.8	2,000
7/8-9	TLF-7809-S	7/8-14	TLF-7814-S	1 5/16	3/4	199	950	1 5/16	31/64	131	1,400
1" -8	TLF-10008-S	1" -14	TLF-10014-S	1 1/2	55/64	294	725	1 1/2	35/64	193	1,000
1 1/8-7	TLF-11807-S	1 1/8-12	TLF-11812-S	1 11/16	31/32	419	500	1 11/16	39/64	270	800
1 1/4-7	TLF-11407-S	1 1/4-12	TLF-11412-S	1 7/8	1 1/16	593	375	1 7/8	23/32	411	500
1 3/8-6	TLF-13806-S	1 3/8-12	TLF-13812-S	2 1/16	1 11/64	788	275	2 1/16	25/32	543	390
1 1/2-6	TLF-11206-S	1 1/2-12	TLF-11212-S	2 1/4	1 9/32	1015	220	2 1/4	27/32	689	270

For Jam dimension nuts, add word "JAM" after part number.

HEAVY HEXAGON SERIES

SIZE	STEEL PART NO.	full nuts WIDTH	full nuts HEIGHT	full nuts WEIGHT PER M	full nuts NUMBER IN CTN.	jam nuts WIDTH	jam nuts HEIGHT	jam nuts WEIGHT PER M	jam nuts NUMBER IN CTN.
1/4-20	TLH-1420-S	1/2	15/64	12	15,000	1/2	11/64	9.2	22,000
5/16-18	TLH-5618-S	9/16	19/64	17.7	9,000	9/16	13/64	12.5	12,500
3/8-16	TLH-3816-S	11/16	23/64	32.0	6,000	11/16	15/64	21.5	9,000
7/16-14	TLH-7614-S	3/4	27/64	42.3	3,600	3/4	17/64	27.6	5,100
1/2-13	TLH-1213-S	7/8	31/64	67.0	3,300	7/8	19/64	42.8	5,300
9/16-12	TLH-9612-S	15/16	35/64	90.0	2,300	15/16	21/64	55.6	3,600
5/8-11	TLH-5811-S	1 1/16	39/64	119	1,800	1 1/16	23/64	73.3	3,000
3/4-10	TLH-3410-S	1 1/4	47/64	192	1,000	1 1/4	27/64	114	1,800
7/8-9	TLH-7809-S	1 7/16	55/64	292	650	1 7/16	31/64	171	1,200
1" -8	TLH-10008-S	1 5/8	63/64	423	500	1 5/8	35/64	242	850
1 1/8-7	TLH-11807-S	1 13/16	1 7/64	585	350	1 13/16	39/64	330	600
1 1/4-7	TLH-11407-S	2"	1 7/32	812	270	2"	23/32	500	440
1 3/8-6	TLH-13806-S	2 3/16	1 11/32	1053	200	2 3/16	25/32	645	350
1 1/2-6	TLH-11206-S	2 3/8	1 15/32	1365	150	2 3/8	27/32	813	260

For Jam dimension nuts, add word "JAM" after part number.

MACHINE SCREW NUTS

SIZE	STEEL PART NO.	WIDTH	HEIGHT	WEIGHT PER M	NUMBER IN CTN.
6-32	TLM-0632-S	5/16	7/64	2.10	50,000
6-40	TLM-0640-S	5/16	7/64	2.10	50,000
8-32	TLM-0832-S	11/32	1/8	2.80	40,000
10-24	TLM-1024-S	3/8	1/8	3.30	35,000
10-32	TLM-1032-S	3/8	1/8	3.30	35,000
12-24	TLM-1224-S	7/16	5/32	5.6	14,000
12-28	TLM-1228-S	7/16	5/32	5.6	14,000

HI NUTS *(lite series)*

SIZE	STEEL PART NO.	WIDTH	HEIGHT	WEIGHT PER M	NUMBER IN CTN.
3/8-24	TLL-3824 Hi	9/16	1/2	24	6,000
7/16-20	TLL-7620 Hi	5/8	9/16	31.5	4,000
1/2-20	TLL-1220 Hi	3/4	21/32	56	3,000
9/16-18	TLL-9618 Hi	7/8	25/32	94	2,000
5/8-18	TLL-5818 Hi	15/16	27/32	109	1,500
3/4-16	TLL-3416 Hi	1 1/16	31/32	151	1,000
7/8-14	TLL-7814 Hi	1 1/4	1 1/8	250	600
1" -14	TLL-10014 Hi	1 7/16	1 5/16	384	400
1 1/8-12	TLL-11812 Hi	1 5/8	1 1/2	566	300
1 1/4-12	TLL-11412 Hi	1 13/16	1 11/16	792	200
1 1/4-12	TLL-11412 Hi (2)	1 13/16	2"	950	150

note: **Except for Hi-Nuts:**

For Brass nuts change letter in part number to "B"
For Aluminum nuts change letter in part number to "A"
For Stainless Steel nuts change letter in part number to "X" and specify type.
For Medium Carbon Nuts—steel 1035 or 1038—add Medium Carbon Steel—heat treated.

Finished Series Hi-Nuts can be furnished to special order.

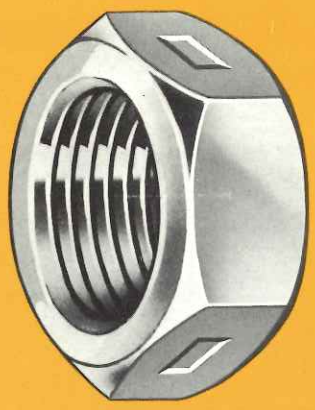
write for details

Plating furnished at slight additional cost—see Page 15. Samples and prices furnished on request.

GRIPCO® CENTERLOCK NUT*

The prevailing torque type Gripco Centerlock Nut was developed for volume low cost automated applications. It is a double chamfer nut with the locking feature at the center threads, allowing application from either end. This nut is also recommended when user assembles the product.

GRIPCO® CENTERLOCK NUT
Double Chamfer to Finished full nut dimensions.



GRIPCO® CENTERLOCK JAM NUT
To Finished Jam nut dimensions. Size range ⅜" through ⅞" (Finished series only).

GRIPCO® MACHINE SCREW CENTER-LOCK NUT
Double Chamfer. Standard across flats machine screw nut dimensions but thicker to incorporate centerlocking feature.

Locking Ability— Stock Gripco Centerlock Nuts are tapped to UN-2B to lock on standard commercial bolts. Not necessary to seat the nut to secure locking action. Shorter bolts can be used to secure application where it is necessary to have bolt end flush with top of nut. The Centerlock feature derives its locking ability from carefully controlled upward, downward and inward displacement of the center threads of the nut. Special light or heavy locking torque can be supplied for specific applications.

Re-Usability— Satisfactory locking torque is maintained through repeated applications even on heat treated bolts. See page 16 for locking torque specifications.

Availability— Available from stock in low carbon steel. See size range and dimension tables on page 6. Nuts of medium carbon steel, brass, aluminum and other metals can also be supplied but are not normal stock items.

Dimensions— Stock nuts are manufactured to the same dimensions as double chamfer Finished full nuts. Heavy single or double chamfer nuts are manufactured to special order only. Shape of Gripco Centerlocking feature: our option, rectangular, square or round.

See reverse side for tables

*PATENTED

GRIPCO® centerlock nuts

FINISHED HEXAGON SERIES

SIZE	STEEL PART NO.	WIDTH	HEIGHT	WEIGHT PER M	NO. IN CTN.
1/4-20	CLF-1420-S	7/16	7/32	7.2 lbs.	20,000
1/4-28	CLF-1428-S	7/16	7/32	7.2 lbs.	20,000
5/16-18	CLF-5618-S	1/2	17/64	10.6 lbs.	14,000
5/16-24	CLF-5624-S	1/2	17/64	10.6 lbs.	14,000
3/8-16	CLF-3816-S	9/16	21/64	15.3 lbs.	8,500
3/8-24	CLF-3824-S	9/16	21/64	15.3 lbs.	8,500
7/16-14	CLF-7614-S	11/16	3/8	27.8 lbs.	6,000
7/16-20	CLF-7620-S	11/16	3/8	27.8 lbs.	6,000
1/2-13	CLF-1213-S	3/4	7/16	36.0 lbs.	5,000
1/2-20	CLF-1220-S	3/4	7/16	36.0 lbs.	5,000
9/16-12	CLF-9612-S	7/8	31/64	56.2 lbs.	3,300
9/16-18	CLF-9618-S	7/8	31/64	56.2 lbs.	3,300
5/8-11	CLF-5811-S	15/16	35/64	69.2 lbs.	2,500
5/8-18	CLF-5818-S	15/16	35/64	69.2 lbs.	2,500
3/4-10	CLF-3410-S	1 1/8	41/64	127.0 lbs.	1,500
3/4-16	CLF-3416-S	1 1/8	41/64	127.0 lbs.	1,500
7/8- 9	CLF-7809-S	1 5/16	3/4	199.0 lbs.	950
7/8-14	CLF-7814-S	1 5/16	3/4	199.0 lbs.	950

Shown in Ford Motor Company Standards, in section E, Style 5, Type III.

GRIPCO® CENTERLOCK MACHINE SCREW NUTS

SIZE	STEEL* PART NO.	WIDTH	HEIGHT	WEIGHT PER M	NO. IN CTN.
4-40	CLMT-0440-S	1/4	5/32	1.50	40,000
6-32	CLMT-0632-S	5/16	5/32	2.9	30,000
8-32	CLMT-0832-S	11/32	5/32	4.8	20,000
10-24	CLMT-1024-S	3/8	3/16	4.7	20,000
10-32	CLMT-1032-S	3/8	3/16	4.7	20,000
12-24	CLMT-1224-S	7/16	7/32	7.0	20,000
12-28	CLMT-1228-S	7/16	7/32	7.0	20,000

Note Change in Part No. From CLM to CLMT

For Brass Centerlock part numbers change letter "S" to "B."
For Aluminum Centerlock part numbers change letter "S" to "A."
For Medium Carbon Nuts steel 1035 or 1038—add Medium Carbon heat-treated.

GRIPCO® CENTERLOCK JAM NUTS *(Finished series only)*

For jam nuts add word "Jam" after full nut part numbers.

Jam dimensioned nuts smaller than 3/8" cannot be made with Centerlock feature. See page 4 for jam nut dimensions. Size range 3/8" through 7/8" Finished Series only.

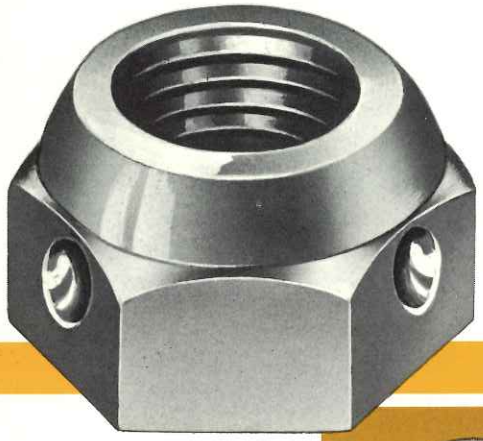
NOTE: Shapes of Gripco® Centerlocking feature: our option—rectangular, square or round.

Various types of plating furnished at slight additional cost

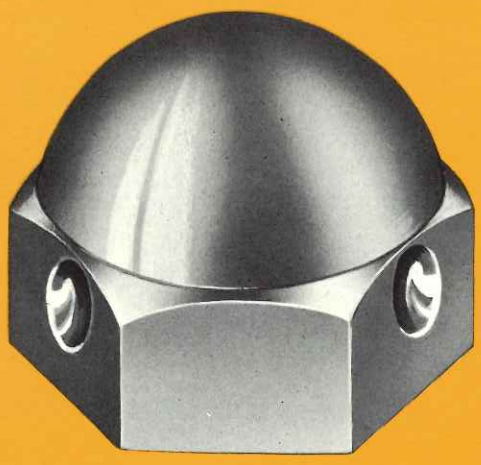
Samples and prices available on request

GRIPCO® *open* and *closed* END CAP NUTS

WITH CENTERLOCK



WITHOUT LOCK



WITH LOCK ONLY

NOTE: Shapes of Gripco® Centerlocking feature: our option—rectangular, square or round.

The Gripco® Open End Cap Nut can be furnished with and without Centerlocking feature. Gripco® Closed End Cap Nuts are furnished with Centerlocking feature only. Both nuts are for applications where a decorative appearance is required and also as a protective measure against snagged clothing and contamination.

Locking Ability – The Gripco Centerlocking feature (on nuts with lock) provides positive locking action on standard commercial bolts. Locking action takes place as soon as one or two bolt threads have engaged the locking feature. Special light or heavy locking torque can be supplied for specific applications.

Re-Usability — Adequate locking torque is maintained through repeated applications. See page 16 for locking torque specifications.

Availability – Usually made to special order, however some of the popular sizes are stock items. Manufactured in steel, brass and aluminum. Stainless steel manufactured to order but not in complete size range.

Dimensions – Manufactured to standard low crown cap nut dimensions. See dimensional charts on page 8.

Suggested Uses – Playground equipment, valves, metal patio and porch furniture, lawn mowers, grocery carts, casters, toys, appliances, hospital equipment, etc.

GRIPCO® centerlock open-end cap nuts

STEEL • BRASS • ALUMINUM

OPEN-END CAP NUTS

	STEEL					BRASS—ALUMINUM		WEIGHT PER M LBS.	
SIZE	PART NO. WITH LOCK	PART NO. LESS LOCK	ACROSS FLATS	TOTAL LENGTH	WEIGHT PER M	ACROSS FLATS	TOTAL LENGTH	BRASS	ALUMINUM
6-32						5/16	1/4	4.2	1.40
8-32	CLOE-0832-S	OE-0832-S	5/16	15/64	3.85	5/16	1/4	4.0	1.40
10-24	CLOE-1024-S	OE-1024-S	3/8	15/64	5.05	3/8	9/32	6.7	2.20
10-32	CLOE-1032-S	OE-1032-S	3/8	15/64	5.07	3/8	9/32	6.7	2.20
1/4-20	CLOE-1420-S	OE-1420-S	7/16	9/32	7.2	7/16	21/64	10.0	3.33
1/4-28	CLOE-1428-S	OE-1428-S	7/16	9/32	7.2	7/16	21/64	10.0	3.33
5/16-18	CLOE-5618-S	OE-5618-S	9/16	3/8	18.5	9/16	3/8	18.5	6.15
5/16-24	CLOE-5624-S	OE-5624-S	9/16	3/8	18.1	9/16	3/8	18.5	6.15
3/8-16	CLOE-3816-S	OE-3816-S	9/16	13/32	16.5	5/8	27/64	25.0	8.33
3/8-24	CLOE-3824-S	OE-3824-S	9/16	13/32	15.6	5/8	27/64	25.0	8.33

BRASS—PART NUMBERS—CHANGE LETTERS "S" TO "B"
ALUMINUM—PART NUMBERS—CHANGE LETTER "S" TO "A"
STAINLESS—PART NUMBERS—CHANGE LETTER "S" TO "X"
STEEL: ALL SIZES CARRIED IN STOCK

BRASS AND ALUMINUM: MANUFACTURED TO SPECIAL ORDER
NOTE: SOME DIMENSIONS ARE CHANGED FROM PREVIOUS CATALOGUES

GRIPCO® centerlock closed-end cap nuts

CLOSED-END CAP NUTS

WITH LOCKING FEATURE

STEEL				WIDTH ACROSS FLATS	HEIGHT	THREAD DEPTH	STEEL APPROX. WT. PER M PIECES
SIZE	PART NO.	SIZE	PART NO.				
6-32	CLC-0632-S			5/16	11/32	5/32	4.9
8-32	CLC-0832-S			5/16	11/32	5/32	4.9
10-24	CLC-1024-S	10-32	CLC-1032-S	3/8	11/32	3/16	6.7
1/4-20	CLC-1420-S	1/4-28	CLC-1428-S	7/16	15/32	1/4	11.5
5/16-18	CLC-5618-S	5/16-24	CLC-5624-S	1/2	17/32	5/16	16.3
3/8-16	CLC-3816-S	3/8-24	CLC-3824-S	9/16	5/8	3/8	22.8
7/16-14	CLC-7614-S	7/16-20	CLC-7620-S	5/8	11/16	7/16	28.8
1/2-13	CLC-1213-S	1/2-20	CLC-1220-S	3/4	13/16	1/2	52.5
9/16-12	CLC-9612-S	9/16-18	CLC-9618-S	7/8	15/16	9/16	75.4
5/8-11	CLC-5811-S	5/8-18	CLC-5818-S	15/16	1"	5/8	98.0
3/4-10	CLC-3410-S	3/4-16	CLC-3416-S	1 1/16	1 5/32	3/4	142.5

ALUMINUM		BRASS		WIDTH ACROSS FLATS	HEIGHT	THREAD DEPTH	APPROX. WEIGHT PER M PCS.	
SIZE	PART NO.	SIZE	PART NO.				ALUMINUM	BRASS
6-32	CLC-0632-A	6-32	CLC-0632-B	5/16	9/32	3/16	1.37	4.5
8-32	CLC-0832-A	8-32	CLC-0832-B	5/16	9/32	3/16	1.37	4.1
10-24	CLC-1024-A	10-24	CLC-1024-B	3/8	11/32	7/32	2.43	7.3
10-32	CLC-1032-A	10-32	CLC-1032-B	3/8	11/32	7/32	2.43	7.3
1/4-20	CLC-1420-A	1/4-20	CLC-1420-B	7/16	3/8	7/32	3.35	10.0
1/4-28	CLC-1428-A	1/4-28	CLC-1428-B	7/16	3/8	1/4	3.35	10.0
5/16-18	CLC-5618-A	5/16-18	CLC-5618-B	9/16	7/16	9/32	6.50	19.5
5/16-24	CLC-5624-A	5/16-24	CLC-5624-B	9/16	7/16	9/32	6.50	19.5
3/8-16	CLC-3816-A	3/8-16	CLC-3816-B	5/8	1/2	5/16	8.50	25.5
3/8-24	CLC-3824-A	3/8-24	CLC-3824-B	5/8	1/2	5/16	8.50	25.5
		7/16-14	CLC-7614-B	3/4	9/16	3/8		45.5
		1/2-13	CLC-1213-B	3/4	9/16	5/16		40.0
		5/8-11	CLC-5811-B	15/16	3/4	7/16		80.0
		3/4-10	CLC-3410-B	1 1/16	7/8	1/2		115.0

Various types of plating furnished at slight additional cost

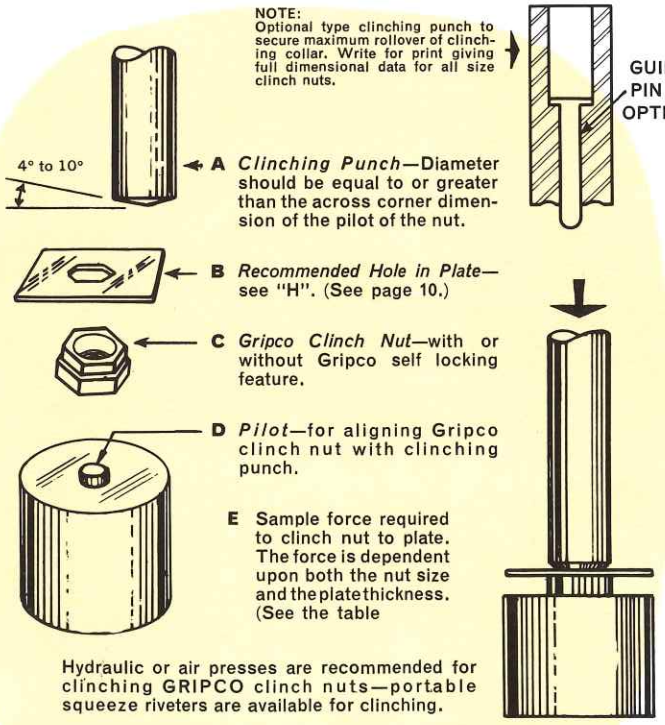
GRIPCO® CLINCH NUTS

note: **Gripco Clinch Nuts in all sizes both Standard and Miniature Series are stocked in low carbon steel with and without Gripco Toplock feature.**

For large volume applications, the hexagon clinching collar can be varied for thin or thick gauge metal and for flush surface clinching.

Aluminum, Brass and 410 or 430 series Stainless Steel Gripco Clinch Nuts can be manufactured to special order in most sizes.

WITH LOCK


NOTE:
Optional type clinching punch to secure maximum rollover of clinching collar. Write for print giving full dimensional data for all size clinch nuts.
GUIDE PIN IS OPTIONAL
4° to 10°
A Clinching Punch—Diameter should be equal to or greater than the across corner dimension of the pilot of the nut.
B Recommended Hole in Plate—see "H". (See page 10.)
C Gripco Clinch Nut—with or without Gripco self locking feature.
D Pilot—for aligning Gripco clinch nut with clinching punch.
E Sample force required to clinch nut to plate. The force is dependent upon both the nut size and the plate thickness. (See the table

Hydraulic or air presses are recommended for clinching GRIPCO clinch nuts—portable squeeze riveters are available for clinching.

NOTE: The 4° taper can be increased up to 10°. The proper degree of taper to give the best clinch should be determined through experimentation.

Advantages

- **Hex hole in plate and Hex pilot precludes any possibility of nut turning when installing or removing bolt.**
- **One pilot height for each size, which will clinch into normal gauge metals. Saves on stocking different pilot height nuts.**
- **Can be clinched to different type metals which do not lend to welding.**
- **Fool proof for blind assemblies.**
- **Can be clinched to thin gauge metal which does not lend itself to extruding and tapping.**
- **Can be clinched after dip painting part to which nut is to be applied.**
- **Can be automatically fed and clinched for high speed production. (Literature available.)**
- **Can be clinched with low cost presses and portable squeeze riveters. (Literature available.)**

Standard Series

- **Size range ¼″ through ⅝″ in both fine and coarse thread.**

Miniature Series

- **Size range #4 through ¼″ in both fine and coarse thread.**
- **Saves weight and space at low cost.**

SIZE NUT	SAMPLE METAL THICKNESS	APPROXIMATE CLINCHING FORCE
steel—standard		
¼″	.055 Metal	10,000 lbs.
5/16″	.055 Metal	12,000 lbs.
⅜″	.055 Metal	14,000 lbs.
7/16″	.075 Metal	20,000 lbs.
½″	.100 Metal	24,000 lbs.
9/16″	.132 Metal	34,000 lbs.
⅝″	.132 Metal	36,000 lbs.
steel—miniature		
#4 & #6	.033 Metal	3,000 lbs.
#8 & #10	.056 Metal	4,500 lbs.
#12 & ¼″	.062 Metal	7,000 lbs.

GRIP NUT COMPANY

Subsidiary of Heli-Coil Corporation • South Whitley, Indiana

GRIPCO® clinch nuts

CLINCH NUTS *standard*

SIZE	STEEL PART NUMBER LESS LOCK	STEEL PART NUMBER WITH LOCK	A ±.005	B ±.005	C ±.005	D ±.010	H*	STEEL WEIGHT PER M	NUMBER IN CTN.
1/4-20-NC	K-1420-S	LK-1420-S							
1/4-28-NF	K-1428-S	LK-1428-S	.429	.521	1/8	11/64	7/16	13	12,000
5/16-18-NC	K-5618-S	LK-5618-S							
5/16-24-NF	K-5624-S	LK-5624-S	.491	.584	5/32	13/64	1/2	18	10,000
3/8-16-NC	K-3816-S	LK-3816-S							
3/8-24-NF	K-3824-S	LK-3824-S	.551	.670	3/16	15/64	9/16	27	5,000
7/16-14-NC	K-7614-S	LK-7614-S							
7/16-20-NF	K-7620-S	LK-7620-S	.614	.742	7/32	17/64	5/8	34	4,000
1/2-13-NC	K-1213-S	LK-1213-S							
1/2-20-NF	K-1220-S	LK-1220-S	.742	.860	1/4	19/64	3/4	55	3,000
9/16-12-NC	K-9612-S	LK-9612-S							
9/16-18-NF	K-9618-S	LK-9618-S	.860	.985	9/32	21/64	7/8	72	2,000
5/8-11-NC	K-5811-S	LK-5811-S							
5/8-18-NF	K-5818-S	LK-5818-S	.922	1.047	5/16	23/64	15/16	97	1,500

CLINCH NUTS *miniature*

4-40-NC	KM-0440-S	LKM-0440-S							
4-48-NF	KM-0448-S	LKM-0448-S	.247	.297	5/64	7/64	.254	2.58	30,000
6-32-NC	KM-0632-S	LKM-0632-S							
6-40-NF	KM-0640-S	LKM-0640-S	.247	.297	5/64	7/64	.254	2.58	30,000
8-32-NC	KM-0832-S	LKM-0832-S							
8-36-NF	KM-0836-S	LKM-0836-S	.305	.368	3/32	1/8	5/16	4.54	20,000
10-24-NC	KM-1024-S	LKM-1024-S							
10-32-NF	KM-1032-S	LKM-1032-S	.305	.368	3/32	1/8	5/16	4.54	20,000
12-24-NC	KM-0224-S	LKM-0224-S							
12-28-NF	KM-0228-S	LKM-0228-S	.368	.428	1/8	5/32	3/8	6.46	10,000
1/4-20-NC	KM-1420-S	LKM-1420-S							
1/4-28-NF	KM-1428-S	LKM-1428-S	.368	.428	1/8	5/32	3/8	6.46	10,000

Part Numbers—BRASS—Change letter "S" to "B"
Part Numbers—Aluminum—Change letter "S" to "A"
Part Numbers—Stainless Steel—Change letter "S" to "X"

With Lock Clinch Nut Part Numbers

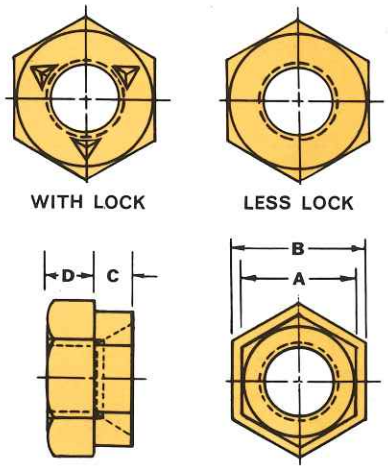
Place Letter "C" Before Letter "L" For Centerlock (Non-Stock)
Place Letter "T" Before Letter "L" For Toplock (Stock)

***Recommended hex hole in plate dim. "H" min. across flats. Dim. "H" + .010 recommended where ease of assembly is important.**

Samples and Net Prices furnished on request

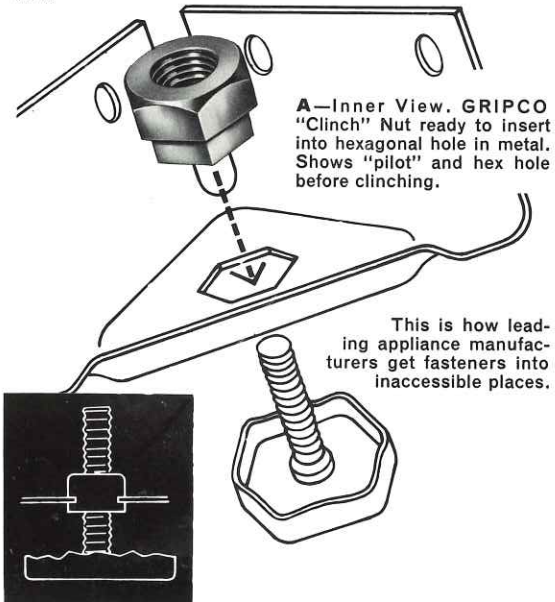
Various types of plating furnished at slight additional cost

CLINCH NUT APPLICATION DATA



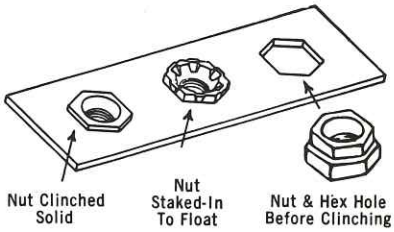
B—Cross-Section view after pilot has been clinched and bolt inserted. Can be locked at any point. (Non-locking nut can be supplied if preferred.)

Dual Purpose Nut—Fastening crate skid to appliance and as leg leveler nut.



A—Inner View. GRIPCO "Clinch" Nut ready to insert into hexagonal hole in metal. Shows "pilot" and hex hole before clinching.

This is how leading appliance manufacturers get fasteners into inaccessible places.



Gripco Clinch Nuts can be either clinched solid for a rigid application or staked in with a six point staking punch to give a floating effect. This floating effect takes care of misalignment and makes the application of the bolt easier. Automatic feeding and clinching machines as well as low cost portable clinching equipment are now available. Write for details.

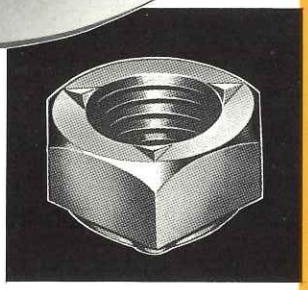
GRIPCO® PILOT-PROJECTION WELD NUT

STYLE 1

Approved or Ordnance Print BBNX5

3-PROJECTIONS

with lock



NOTE:

STYLE 1 (3 PROJECTIONS)
All part numbers are stock items.

STYLE 2 (6 PROJECTIONS)
Not manufactured in numbered sizes of miniature or standard series. Many sizes are stock but not all.

FOR STYLE 2 PART NUMBERS:
add -6 (Example: C-5164-6)

STYLE 2

6-PROJECTIONS

with lock

The Gripco Pilot-Projection Weld Nut (3 or 6 projections) is designed for easy, quick positioning. The circular pilot automatically centers the nut in a hole of appropriate size, in the part to which the nut is to be welded. There is no need for expensive jigs or centering devices. The pilot helps prevent weld spatter from entering the nut threads.

Design —

- **Three or six projections provide a firm, non-rocking electrical connection during welding.**
- **Weld projections are engineered to appropriate size for thin or thick gauge metal.**
- **The long pilot and large projections are for thick metal, 13 gauge and thicker.**
- **The short pilot and smaller projections are for thin metal, 14 gauge and thinner.**
- **A hole 1/64" larger in diameter than the diameter of the pilot is recommended for ordinary applications. However, the hole diameter may be pierced .003 over the pilot diameter for closer tolerances.**
- **Gripco Pilot Weld Nuts with the Gripco Toplock feature can be furnished to eliminate the necessity for special locking devices.**
- **All stock nuts are tapped to UN-2B.**

Material —

Gripco Pilot Weld Nuts are manufactured from low carbon steel C-1110. Stainless Steel Gripco Weld Nuts can be manufactured to special order in the standard series from 8-32 through 3/8" and complete miniature series (short pilot only).

Specials —

Gripco Pilot Weld Nuts to other than standard dimensions or pilot heights can be manufactured to special order.

Availability —

All Gripco Weld Nuts (low carbon steel) Style 1 in the standard and miniature series are stocked for immediate delivery. Style 2 is carried in stock in many sizes but not all. Style 2 is only made in the standard series 1/4" and up.

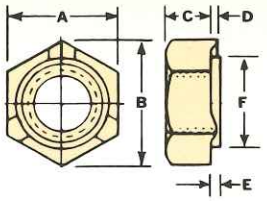
Miniature Series —

New smaller dimensioned Gripco Pilot Weld Nuts (3 projections only) are now available to meet the demand for small fasteners to save weight and space. Size range No. 4 through 1/4". See page 12 for dimensional data.

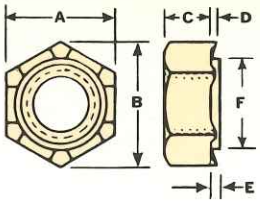
NOTE: Refer to page 14 for general information on welding.

GRIPCO® PILOT PROJECTION WELD NUTS

STYLE 1
3-PROJECTION WELD NUT



STYLE 2
6-PROJECTION WELD NUT



	Size	PART NUMBER		A	B Min.	C ±.010	D ±.003	E ±.005	F +.000 −.012	G*	WT. PER M	NUMBER IN CTN.
		LESS LOCK	WITH LOCK									
SHORT PILOT use with metal 14 gauge or thinner	8-32	C-84	LC-84	1/2	.556	3/16	.025	.040	.406	27/64	10.5	15,000
	10-24	C-104	LC-104	1/2	.556	3/16	.025	.040	.406	27/64	10.5	15,000
	10-32	F-104	LF-104	1/2	.556	3/16	.025	.040	.406	27/64	10.5	15,000
	12-24	C-024	LC-024	1/2	.556	3/16	.025	.040	.406	27/64	10.5	15,000
	12-28	F-024	LF-024	1/2	.556	3/16	.025	.040	.406	27/64	10.5	15,000
	1/4-20	C-144	LC-144	1/2	.556	3/16	.025	.040	.406	27/64	10.2	15,000
	1/4-28	F-144	LF-144	1/2	.556	3/16	.025	.040	.406	27/64	10.2	15,000
	5/16-18	C-5164	LC-5164	9/16	.624	7/32	.025	.040	.469	31/64	13.7	12,000
	5/16-24	F-5164	LF-5164	9/16	.624	7/32	.025	.040	.469	31/64	13.7	12,000
	3/8-16	C-385	LC-385	5/8	.691	1/4	.030	.050	.531	35/64	18.5	8,000
	3/8-24	F-385	LF-385	5/8	.691	1/4	.030	.050	.531	35/64	18.5	8,000
	7/16-14	C-7165	LC-7165	3/4	.830	5/16	.030	.050	.656	43/64	33.0	4,500
	7/16-20	F-7165	LF-7165	3/4	.830	5/16	.030	.050	.656	43/64	33.0	4,500
	1/2-13	C-126	LC-126	13/16	.898	3/8	.035	.060	.719	47/64	45.0	4,000
	1/2-20	F-126	LF-126	13/16	.898	3/8	.035	.060	.719	47/64	45.0	4,000
	9/16-12	C-9166	LC-9166	7/8	.982	7/16	.035	.060	.781	51/64	58.0	3,000
	9/16-18	F-9166	LF-9166	7/8	.982	7/16	.035	.060	.781	51/64	58.0	3,000
	5/8-11	C-586	LC-586	15/16	1.051	7/16	.035	.060	.781	51/64	63.0	2,500
	5/8-18	F-586	LF-586	15/16	1.051	7/16	.035	.060	.781	51/64	63.0	2,500
LONG PILOT use with metal 13 gauge or thicker	8-32	C-88	LC-88	1/2	.556	3/16	.040	.085	.406	27/64	10.5	15,000
	10-24	C-108	LC-108	1/2	.556	3/16	.040	.085	.406	27/64	10.5	15,000
	10-32	F-108	LF-108	1/2	.556	3/16	.040	.085	.406	27/64	10.5	15,000
	12-24	C-028	LC-028	1/2	.556	3/16	.040	.085	.406	27/64	10.5	15,000
	12-28	F-028	LF-028	1/2	.556	3/16	.040	.085	.406	27/64	10.5	15,000
	1/4-20	C-148	LC-148	1/2	.556	3/16	.040	.085	.406	27/64	10.2	15,000
	1/4-28	F-148	LF-148	1/2	.556	3/16	.040	.085	.406	27/64	10.2	15,000
	5/16-18	C-5168	LC-5168	9/16	.624	7/32	.040	.085	.469	31/64	13.7	12,000
	5/16-24	F-5168	LF-5168	9/16	.624	7/32	.040	.085	.469	31/64	13.7	12,000
	3/8-16	C-388	LC-388	5/8	.691	1/4	.040	.085	.531	35/64	18.5	8,000
	3/8-24	F-388	LF-388	5/8	.691	1/4	.040	.085	.531	35/64	18.5	8,000
	7/16-14	C-7168	LC-7168	3/4	.830	5/16	.040	.085	.656	43/64	33.0	4,500
	7/16-20	F-7168	LF-7168	3/4	.830	5/16	.040	.085	.656	43/64	33.0	4,500
	1/2-13	C-128	LC-128	13/16	.898	3/8	.040	.085	.719	47/64	45.0	4,000
	1/2-20	F-128	LF-128	13/16	.898	3/8	.040	.085	.719	47/64	45.0	4,000
	9/16-12	C-9168	LC-9168	7/8	.982	7/16	.040	.085	.781	51/64	58.0	3,000
	9/16-18	F-9168	LF-9168	7/8	.982	7/16	.040	.085	.781	51/64	58.0	3,000
	5/8-11	C-588	LC-588	15/16	1.051	7/16	.040	.085	.781	51/64	63.0	2,500
	5/8-18	F-588	LF-588	15/16	1.051	7/16	.040	.085	.781	51/64	63.0	2,500
MEDIUM PILOT Use with metal 16 gauge or thicker	1/4-20	C-146	LC-146	1/2	.556	3/16	.040	.065	.406	27/64	10.2	15,000
	1/4-28	F-146	LF-146	1/2	.556	3/16	.040	.065	.406	27/64	10.2	15,000
	5/16-18	C-5167	LC-5167	9/16	.624	7/32	.040	.070	.469	31/64	13.7	12,000
	5/16-24	F-5167	LF-5167	9/16	.624	7/32	.040	.070	.469	31/64	13.7	12,000
SHORT PILOT miniature weld nuts	4-40	C-43-M	LC-43-M	1/4	.275	1/8	.015	.030	.203	7/32	1.5	50,000
	6-32	C-63-M	LC-63-M	5/16	.344	7/64	.015	.030	.266	9/32	2.5	40,000
	6-40	F-63-M	LF-63-M	5/16	.344	7/64	.015	.030	.266	9/32	2.5	40,000
	8-32	C-83-M	LC-83-M	3/8	.413	1/8	.015	.030	.313	21/64	4.5	25,000
	8-36	F-83-M	LF-83-M	3/8	.413	1/8	.015	.030	.313	21/64	4.5	25,000
	10-24	C-103-M	LC-103-M	3/8	.413	1/8	.015	.030	.313	21/64	4.3	25,000
	10-32	F-103-M	LF-103-M	3/8	.413	1/8	.015	.030	.313	21/64	4.3	25,000
	12-24	C-023-M	LC-023-M	7/16	.482	5/32	.015	.030	.359	3/8	6.0	15,000
	12-28	F-023-M	LF-023-M	7/16	.482	5/32	.015	.030	.359	3/8	6.0	15,000
	1/4-20	C-143-M	LC-143-M	7/16	.482	5/32	.015	.030	.359	3/8	5.8	15,000
	1/4-28	F-143-M	LF-143-M	7/16	.482	5/32	.015	.030	.359	3/8	5.8	15,000
LONG PILOT miniature weld nuts	6-32	C-65-M	LC-65-M	5/16	.344	7/64	.025	.050	.266	9/32	2.5	40,000
	6-40	F-65-M	LF-65-M	5/16	.344	7/64	.025	.050	.266	9/32	2.5	40,000
	8-32	C-85-M	LC-85-M	3/8	.413	1/8	.025	.050	.313	21/64	4.5	25,000
	8-36	F-85-M	LF-85-M	3/8	.413	1/8	.025	.050	.313	21/64	4.5	25,000
	10-24	C-105-M	LC-105-M	3/8	.413	1/8	.025	.050	.313	21/64	4.3	25,000
	10-32	F-105-M	LF-105-M	3/8	.413	1/8	.025	.050	.313	21/64	4.3	25,000
	12-24	C-025-M	LC-025-M	7/16	.482	5/32	.025	.050	.359	3/8	6.0	15,000
	12-28	F-025-M	LF-025-M	7/16	.482	5/32	.025	.050	.359	3/8	6.0	15,000
	1/4-20	C-145-M	LC-145-M	7/16	.482	5/32	.025	.050	.359	3/8	5.8	15,000
	1/4-28	F-145-M	LF-145-M	7/16	.482	5/32	.025	.050	.359	3/8	5.8	15,000

FOR STYLE 2 PART NUMBERS: ADD -6 (EXAMPLE: C-5164-6)

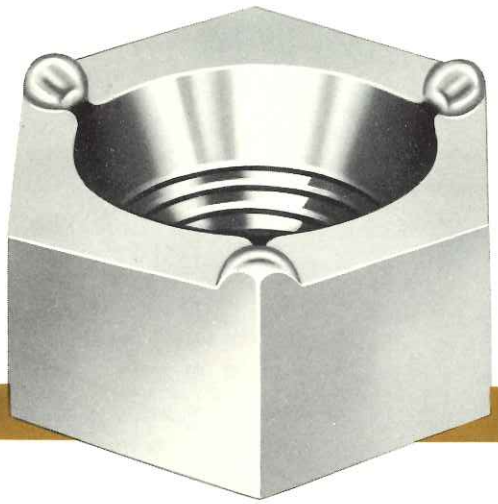
With Lock Pilot Weld Nut Part Numbers

Place Letter "C" Before Letter "L" For Centerlock (Non-Stock)
Place Letter "T" Before Letter "L" For Toplock (Stock)

**Dimension "G" is recommended size of hole in plate. See Dimension Table.*

Samples and net prices furnished on request.

GRIPCO® COUNTERSUNK WELD NUTS



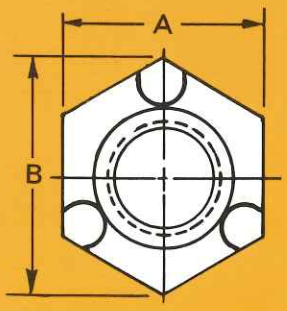
The Gripco "Countersunk" Weld Nut eliminates frequent time-wasting retapping of nuts after welding. The bottom of each nut is countersunk —an exclusive feature—to eliminate any fouling of the nut threads by molten metal particles dislodged during welding. The nut is immediately ready to receive the bolt, with no time wasted in false starts and cleaning of damaged threads. Three weld projections on the bottom of each nut provide a firm, non-rocking electrical connection during welding.

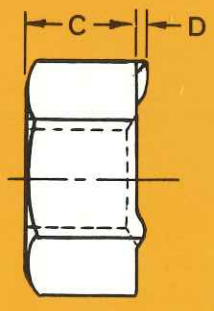
APPROVED ON ORDNANCE PRINT BBNX-4.1

- **Furnished with or without the Gripco® Toplock feature. Eliminates need for special locking devices.**
- **Stocked in low carbon steel C-1110 only. Stainless Steel Countersunk Weld Nuts can be furnished to special order in sizes #8 thru 5/16".**
- **Manufactured with six (6) weld projections for curved, tank or tube applications to special order.**
- **Special thickness and across flat dimensioned Gripco® Countersunk Weld Nuts can be manufactured to special order.**
- **Large inventories maintained to provide immediate delivery.**

WITH LOCK

LESS LOCK





Size	Part Number		A	B Min.	C ±.010	D ±.003	Weight per M	Number in Ctn.
	Less Lock	With Lock						
8-32	C-8	LC-8	7/16	.485	3/16	.030	7.2	20,000
10-24	C-10	LC-10	7/16	.485	3/16	.030	7.0	20,000
10-32	F-10	LF-10	7/16	.485	3/16	.030	7.0	20,000
1/4-20	C-14	LC-14	7/16	.485	3/16	.030	6.0	20,000
1/4-28	F-14	LF-14	7/16	.485	3/16	.030	6.0	20,000
5/16-18	C-516	LC-516	5/8	.691	9/32	.040	20	8,000
5/16-24	F-516	LF-516	5/8	.691	9/32	.040	20	8,000
3/8-16	C-38	LC-38	3/4	.830	5/16	.040	32.5	5,000
3/8-24	F-38	LF-38	3/4	.830	5/16	.040	32.5	5,000
1/2-13	C-12	LC-12	7/8	.966	7/16	.040	57.6	3,000
1/2-20	F-12	LF-12	7/8	.966	7/16	.040	57.6	3,000
5/8-11	C-58	LC-58	1 1/16	1.175	5/8	.040	117	1,500
5/8-18	F-58	LF-58	1 1/16	1.175	5/8	.040	117	1,500

With Lock Countersunk Weld Nut Part Numbers

Place Letter "C" Before Letter "L" For Centerlock (Non-Stock)
Place Letter "T" Before Letter "L" For Toplock (Stock)

Samples and net prices furnished on request.

GRIP NUT COMPANY
Subsidiary of Heli-Coil Corporation • South Whitley, Indiana

WELDING INFORMATION

Gripco® Pilot-Projection Weld Nuts

are designed to give maximum welding results. Projections are uniform in height and in volume of metal. Gripco short pilot weld nuts are designed for thin gauge metal with projections of less height and volume of metal. Gripco long pilot weld nuts are designed for thicker-gauge metal with projections of greater height and volume of metal.

Gripco® Countersunk Weld Nuts

are designed with the bottom of each nut countersunk to eliminate the possibility of fouling nut threads by weld spatter. Weld projections are thinner and of less volume for small nuts. They are designed primarily for blind applications where no hole is required and a piloted nut would be impractical.

WELDING EQUIPMENT:

Press-type projection welders of suitable capacity are recommended, although many users have successfully used rocker arm spot welders on the smaller sizes. Preferred welder capacity is 100 KVA.

TIPS ON WELDING:

There are three basic welding adjustments: control of heat, time, and pressure. The following chart is an indication of settings for nuts ¼″ to ½″ welded to sheet metal ranging in thickness from $\frac{3}{32}$″ to ⅛″ and containing not more than .25 carbon.

Primary volts	**440**
Primary amperes	**200 to 250**
Secondary volts, open circuit	**4 to 6**
Secondary amperes	**16,000 to 21,000**
Pressure in pounds	**800 to 1,100**
Time in cycles	**6**

Welds made under the correct conditions will be ductile and the nuts can be removed only by overcoming the resistance offered by the parent metal.

Welds should show no discoloration. Any discoloration indicates that welding time is too long or voltage too high.

If results should prove unsatisfactory, the following procedure is suggested:

1. **Check secondary circuit for proper current at the welding points.**
2. **Check pressure at welding points; too much or too little will result in failure.**
3. **Check the timing; this must be accurate. Too short a time will result in brittle welds and too long a time will result in no weld.**
4. **Check power source or primary circuit for voltage drop. If fluctuation exceeds plus or minus five per cent, results will not be consistent.**

Welding electrodes should be at least ⅛″ larger in diameter than the across corner of the nut.

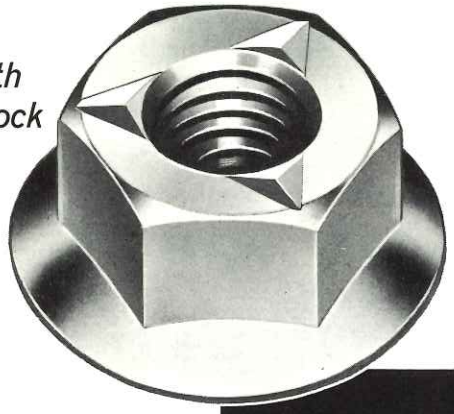
Opposing electrode faces should always be parallel and clean.

Among the problems to be avoided in the welding of fasteners, flashing is the most common. This is the result of poor welding and causes spatter of molten metal. Too high voltage or too low weld pressure will cause flash. In one instance, current is being pushed through the projections too fast causing the projections to burst. In the other case, the contact between projections and engagement sheet is not great enough to provide good electrical contact for the flow of current; therefore the current tends to arc, causing flash. Improper weld timing will also lead to flash when the welding current goes on before the upper electrode makes contact with the part. This is solved by increasing squeeze time.

WELDING STAINLESS STEEL NUTS

Welding stainless steel nuts requires special attention. Parts made from 18-8 type 305 to weldable grades of stainless will require considerably higher welding pressures, cleaner assemblies and both less current and weld time to avoid discoloration, burning and carbide precipitation. On most stainless parts, a range of 5 to 10 cycles on popular thicknesses under .125″ is recommended. RWMA copper-base Group A, Class 3 alloy electrodes should be used.

OTHER GRIPCO® PRODUCTS

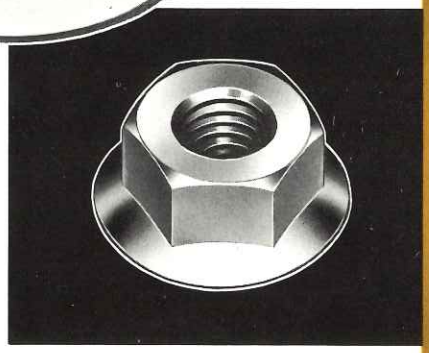


with toplock

GRIPCO® FLANGE NUTS

Gripco narrow and wide flange nuts are a strong cold formed washer-nut combination. It makes an ideal nut for vibration absorbers for compressors and engine mounts.

Write for print showing sizes and dimensional data. Samples and prices are available on request.



without toplock

HEX FINISHED & HEAVY NUTS

Standard Hexagon steel nuts are stocked for immediate delivery. Size range ¼" through 1½" Finished and Heavy Series full and jam. Lite and Finished Hi-nuts also available.

with toplock

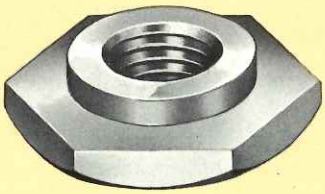
GRIPCO® WASHER NUTS

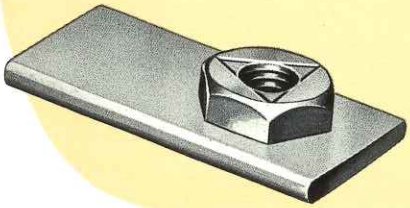
without toplock

For applications to secure greatest bearing area with minimum wrench size. Reinforced nut base prevents dilation when torqued.

Write for print N-254 giving size and dimensional data. Samples and prices are available on request.

SPECIAL NUTS





Specials are a big part of our business. Send prints so we can determine possible cost savings.

PLATING INFORMATION

All metal locknuts of the friction thread type require lubrication after plating to prevent excessive torque or galling. When plated by the Grip Nut Company Gripco fasteners with the Toplock or Centerlock feature receive a special wax treatment after plating. All Gripco fasteners can be furnished plated at slight additional cost. See price lists for plating charges.

GRIP NUT COMPANY 1964

Subsidiary of Heli-Coil Corporation • South Whitley, Indiana

SHORT FORM TEST PROCEDURE

Prevailing Torque Type Lock Nuts

This test procedure was developed by the Lock Nut Section of the Industrial Fasteners Institute. Complete test procedure will be sent when requested. All Gripco® Locking Nuts meet these Specifications.

1) FORM AND DIMENSION.

Form and dimension of lock nuts shall conform to the requirements of American Standard B-18.2 for hexagon nuts. See dimensional data on pages 4 and 6.

2) THREAD TOLERANCES.

All Gripco nuts are tapped to Class 2-B tolerances, unless otherwise specified. However, control of assembleability of lock nuts is obtained through tests for locking ability and not class fit.

3) LOCKING ABILITY.

The prevailing torque on first installation shall not exceed the maximum shown in the table. The breakaway torque shall not be less than that shown in the table for first removal and fifth removal. The sample lock nuts should be assembled using a hand torque wrench on undrilled bolts (preferably bolts on which the nuts are to be used in service). The bolt thread shall be class 2-A. A new bolt shall be used for testing each lock nut. The bolt finish shall correspond to that of the lock nut. A suitable lubricant should be used when testing to prevent chatter and torque build up especially on plated parts. The same lock nut and test bolt shall be used throughout the test.

PREVAILING TORQUE:

The prevailing torque is the on-torque at first installation, read with no load on the bolt, with the lock nut in motion, and with the bolt protruding through the lock nut between two and three threads. Reverse torque shall then be applied to the lock nut and breakaway torque read.

LOCKING ABILITY

Nominal Size	PREVAILING TORQUE In.-Lb., Max.		BREAKAWAY TORQUE In.-Lb., Min.			
			1st Removal		5th Removal	
	Grade A & B	Grade C	Grade A & B	Grade C	Grade A & B	Grade C
#4	3.0	4.0	1.0	1.0	0.5	0.5
#6	6.0	8.0	1.5	2.0	1.0	1.5
#8	9.0	12.0	2.0	2.5	1.5	2.0
#10	13	17	2.5	3.5	2.0	2.5
#12	20	27	3.5	4.5	2.5	3.0
1/4	30	40	5.0	6.0	3.5	4.5
5/16	60	80	8.0	10.5	5.5	7.5
3/8	80	107	12	16	8.5	11.5
7/16	100	133	17	23	12	16
1/2	150	200	22	30	15	20
9/16	200	266	30	40	21	28
5/8	300	400	39	52	27	36
3/4	400	533	58	78	41	54
7/8	600	800	88	117	62	82
1"	800	1,070	120	160	84	112
1 1/8	900	1,200	150	200	105	140
1 1/4	1,000	1,333	188	250	132	176
1 3/8	1,200	1,600	220	293	154	205
1 1/2	1,350	1,800	260	346	182	242

Note: It is recommended that grades of lock nuts be used with the following bolt grades:

Lock Nut Grade	Bolt Grade
A	2 or 5
B	5
C	6, 7 & 8

BREAKAWAY TORQUE:

The breakaway torque is the torque required to start the lock nut in motion to remove. The breakaway torque is measured on the first and fifth removal.

IDENTIFICATION OF BOLT GRADES

These specifications are listed for reference only. The Grip Nut Company does not manufacture bolts or screws, however, our sales engineers and representatives are available for consultation on the use of the proper lock nut for various Grade bolts.

GRADE 2

NO MARKING *Low Carbon Steel*

GRADE 5

3 RADIAL DASHES 120° APART

Medium Carbon Steel, quenched and tempered

GRADE 7

5 RADIAL DASHES 72° APART

**Medium carbon fine grain alloy steel, quenched and tempered*

GRADE 8

6 RADIAL DASHES 60°

**Medium carbon fine grain alloy steel, quenched and tempered*

*Carbon steel may be used by agreement between producer and consumer.

PHYSICAL AND MECHANICAL REQUIREMENTS FOR THREADED FASTENERS *from 1959 SAE handbook*

PROOF LOAD, TENSILE STRENGTH AND HARDNESS REQUIREMENTS OF BOLTS AND NUTS

Bolt Size Dia. In.	COARSE THREAD		FINE THREAD		HARDNESS		MATERIAL-HEAT TREATMENT FOR BOLTS
	Proof Load lb.	Tensile Strength & Proof Load of Nuts—Min. lb.	Proof Load lb.	Tensile Strength & Proof Load of Nuts—Min. lb.	Brinell	Rockwell	
GRADE 2							
1/4	1,750	2,200	2,000	2,500	241 max	100 B max	This is intended to be a cold headed product made from low carbon steel; C 0.28 max, P 0.04 max, and S 0.05 max. Lengths over 6 in. may be hot headed from medium carbon steel; C 0.55 max. Deviation from specified chemistry may be made by agreement between producer and consumer. *Commercial steel on sizes over 3/4".*
5/16	2,900	3,600	3,200	4,000	241	100 B	
3/8	4,250	5,350	4,850	6,050	241	100 B	
7/16	5,850	7,350	6,550	8,200	241	100 B	
1/2	7,800	9,800	8,800	11,050	241	100 B	
9/16	9,450	11,650	10,550	13,000	241	100 B	
5/8	11,750	14,450	13,300	16,400	241	100 B	
3/4	17,350	21,400	19,400	23,850	241	100 B	
7/8	12,900	25,400	14,250	28,000	207	—	
1	16,950	33,350	18,550	36,450	207	—	
1 1/8	21,350	41,950	23,950	47,100	207	—	
1 1/4	27,100	53,300	29,950	59,000	207	—	
1 3/8	32,300	63,550	36,800	72,350	207	—	
1 1/2	39,300	77,300	44,000	86,950	207	—	
GRADE 5							
1/4	2,700	3,800	3,100	4,350	241-302	23-32 C	**MEDIUM CARBON STEEL;** C 0.28 to 0.55, P 0.04 max, and S 0.05 max. Quenched and tempered at a minimum temperature of 800° F.
5/16	4,450	6,300	4,950	6,950	241-302	23-32 C	
3/8	6,600	9,300	7,450	10,550	241-302	23-32 C	
7/16	9,050	12,750	10,100	14,250	241-302	23-32 C	
1/2	12,050	17,050	13,600	19,200	241-302	23-32 C	
9/16	15,450	21,850	17,250	24,350	241-302	23-32 C	
5/8	19,200	27,100	21,750	30,700	241-302	23-32 C	
3/4	28,400	40,100	31,700	44,750	241-302	23-32 C	
7/8	36,050	53,150	39,700	58,550	235-302	22-32 C	
1	47,250	69,700	51,700	76,250	235-302	22-32 C	
1 1/8	56,450	80,100	63,350	89,900	223-285	19-30 C	
1 1/4	71,700	101,750	79,400	112,650	223-285	19-30 C	
1 3/8	85,450	121,300	97,300	138,100	223-285	19-30 C	
1 1/2	103,950	147,550	117,000	166,000	223-285	19-30 C	
GRADE 7							
1/4	3,400	4,250	3,800	4,850	269-321	28-34 C	**MEDIUM CARBON FINE GRAIN ALLOY STEEL*;** C 0.28 to 0.55, P 0.04 max. and S 0.05 max. providing sufficient hardenability to have a minimum oil quenched hardness of 47 RC at the center of the threaded section one diameter from the end of the bolt. Oil quenched and tempered at a minimum temperature of 800° F. Roll threaded after heat treatment.
5/16	5,500	6,950	6,100	7,700	269-321	28-34 C	
3/8	8,150	10,300	9,200	11,700	269-321	28-34 C	
7/16	11,150	14,150	12,450	15,800	269-321	28-34 C	
1/2	14,900	18,850	16,800	21,250	269-321	28-34 C	
9/16	19,100	24,200	21,300	27,000	269-321	28-34 C	
5/8	23,750	30,050	26,900	34,050	269-321	28-34 C	
3/4	35,050	44,400	39,150	49,600	269-321	28-34 C	
7/8	48,500	61,450	53,450	67,700	269-321	28-34 C	
1	63,650	80,600	69,600	88,200	269-321	28-34 C	
1 1/8	80,100	101,500	89,900	113,850	269-321	28-34 C	
1 1/4	101,750	128,900	112,650	142,700	269-321	28-34 C	
1 3/8	121,300	153,600	138,100	174,900	269-321	28-34 C	
1 1/2	147,550	186,850	166,000	210,250	269-321	28-34 C	
GRADE 8							
1/4	3,800	4,750	4,350	5,450	302-352	32-38 C	**MEDIUM CARBON FINE GRAIN ALLOY STEEL*;** C 0.28 to 0.55, P 0.04 max. and S 0.05 max. providing sufficient hardenability to have a minimum oil quenched hardness of 47 RC at the center of the threaded section one diameter from the end of the bolt. Oil quenched and tempered at a minimum temperature of 800° F.
5/16	6,300	7,850	6,950	8,700	302-352	32-38 C	
3/8	9,300	11,650	10,550	13,150	302-352	32-38 C	
7/16	12,750	15,950	14,250	17,800	302-352	32-38 C	
1/2	17,050	21,300	19,200	24,000	302-352	32-38 C	
9/16	21,850	27,300	24,350	30,450	302-352	32-38 C	
5/8	27,100	33,900	30,700	38,400	302-352	32-38 C	
3/4	40,100	50,100	44,750	55,950	302-352	32-38 C	
7/8	55,450	69,300	61,100	76,350	302-352	32-38 C	
1	72,700	90,900	79,550	99,450	302-352	32-38 C	
1 1/8	91,550	114,450	102,700	128,400	302-352	32-38 C	
1 1/4	116,300	145,350	128,750	160,950	302-352	32-38 C	
1 3/8	138,600	173,250	157,800	197,250	302-352	32-38 C	
1 1/2	168,600	210,750	189,700	237,150	302-352	32-38 C	

*Carbon steel may be used by agreement between producer and consumer.

GRIP NUT COMPANY SERVICE

Serving Industry For Over 55 Years As The Nation's Oldest Manufacturer Of Lock Nuts. Established 1904.

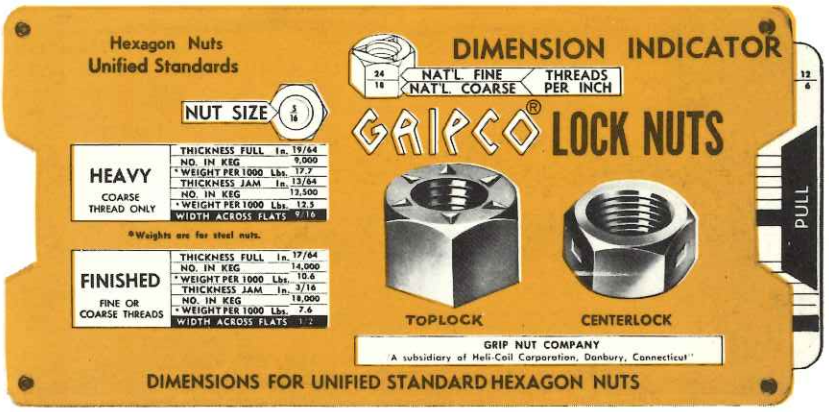
The Grip Nut Company, originator of the Gripco® Fasteners, has had unsurpassed experience in the most exacting of all fields for the use of lock nuts—railroad transportation. The Grip Nut Company has been supplying lock nuts to American railroads and railroad car builders for the past fifty-five years. All other major industries are represented among the regular users of Gripco Fasteners. Various types of working conditions and many difficult problems have been met and overcome by Gripco Fasteners.

Grip Nut Company will welcome an opportunity to work with your product designers, production engineers and value analysts on any detail of the application of Gripco Fasteners. The centrally located Grip Nut Company manufacturing plant, sales and executive offices are always ready to put their know-how at your service. Specially trained fastener engineers are located in all sections of the country ready to assist in the solution of your fastener problems.

Large inventories of all catalogue listed items are maintained for immediate delivery.

FREE ON REQUEST

A handy, 7″ x 3¼″, slide rule type, dimension indicator for GRIPCO fine or coarse thread lock nuts. Gives sizes, dimensions, weights, and keg quantities at a glance for both Gripco Lock Nuts and Standard Steel Nuts in Finished and Heavy Series. Samples of Gripco Fasteners are available for the asking. Write for them on your company letterhead.



INFORMATION TO FURNISH ON ORDERS OR INQUIRIES

GRIPCO® TOPLOCK AND CENTERLOCK NUTS:

- Specify Gripco part number, size and threads per inch.
- Show whether Finished or Heavy Series and spell out Centerlock or Toplock.
- For brass nuts change letter "S" in part number to "B".
- For aluminum nuts change letter "S" to "A".
- For stainless steel nuts change letter "S" to "X" and also show type stainless.
- When jam lock nuts are required show the word "Jam" after part number.
- For medium carbon steel nuts (1035 or 1038 steel) heat treated—show after part number 1035 or 1038 steel heat treated, also Rockwell "C" range.

GRIPCO® WELD NUTS:

Pilot Type: Specify Gripco part number, size and threads per inch, pilot height (long, short or medium), with or without lock and whether standard or miniature series.

Countersunk Type: Specify by part number, show size and threads per inch and with or without lock.

GRIPCO® CLINCH NUTS:

Specify Gripco part number, size and threads per inch and standard or miniature series.

ACTUALLY THE GRIPCO PART NUMBERS ARE ALL THAT IS NEEDED BUT EXTRA DESCRIPTION GIVES A CHECK.

PLATING:

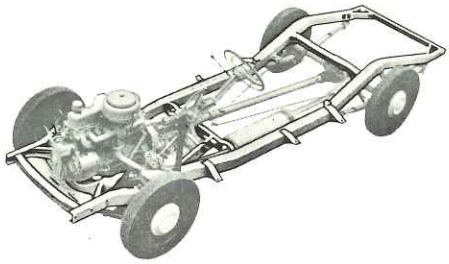
Specify type plating (cadmium, zinc or copper), whether dichromate or iridite is required and also if other than commercial thickness plating is required. Specify thickness range. See page 15 for plating information and price list for plating charges.

NOTE: For maximum price benefit, order in container quantities or multiples and specify delivery date.

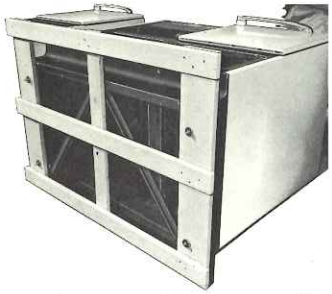
On inquiries for samples, the following information would be helpful:

1. Hardness or grade of the bolt on which the nut will be used.
2. Type product on which nut will be used. Will user assemble the product.
3. Whether the bolt or screw on which nut will be used is slotted head, Phillips head or Hexagon.

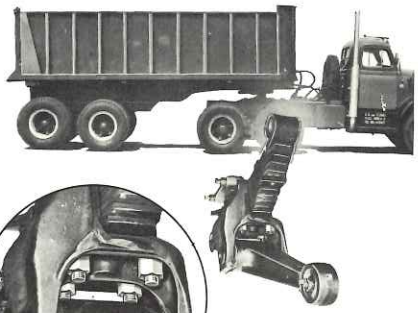
Gripco Fasteners are used extensively on many different types of farm equipment.



Millions of Gripco Weld-Nuts and Clinch Nuts are used for automobile frames and parts.



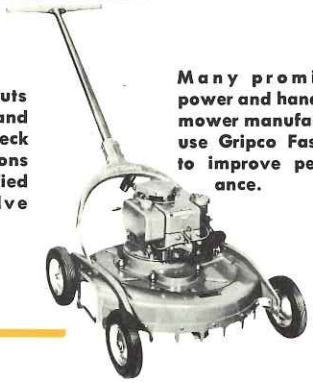
Many appliance manufacturers use Gripco Fasteners for crating and leg leveling applications.



Gripco TopLock Hi-Nuts are used for leaf spring U-bolt fastenings on cars, trucks, buses and trailers.

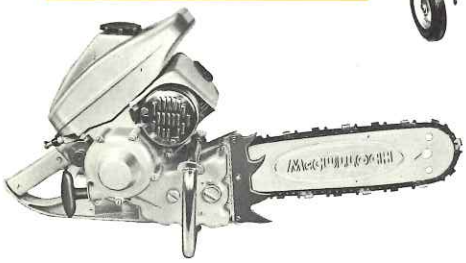
typical applications of GRIPCO® fasteners

Gripco Lock-Nuts are ideal for hand wheel and check valve applications and are specified by many valve companies.



Many prominent power and hand lawn mower manufacturers use Gripco Fasteners to improve performance.

Many manufacturers are using Gripco TopLock Jam & Full Nuts on caster axles and king pins.



Gripco TopLock Nuts and Centerlock Nuts are used on chain saws to give greater durability.

Garden and pruning shear manufacturers improve their products with Gripco Lock Nuts.

Gripco Locking Hi-Nuts used on two and four wheel running gear insure against spring failure.

Many house trailer chassis manufacturers rely on Gripco Fasteners to insure customer satisfaction.

OUTDOOR BARBECUE EQUIPMENT

OUTDOOR FURNITURE

FOOD MART CARTS

BOATS

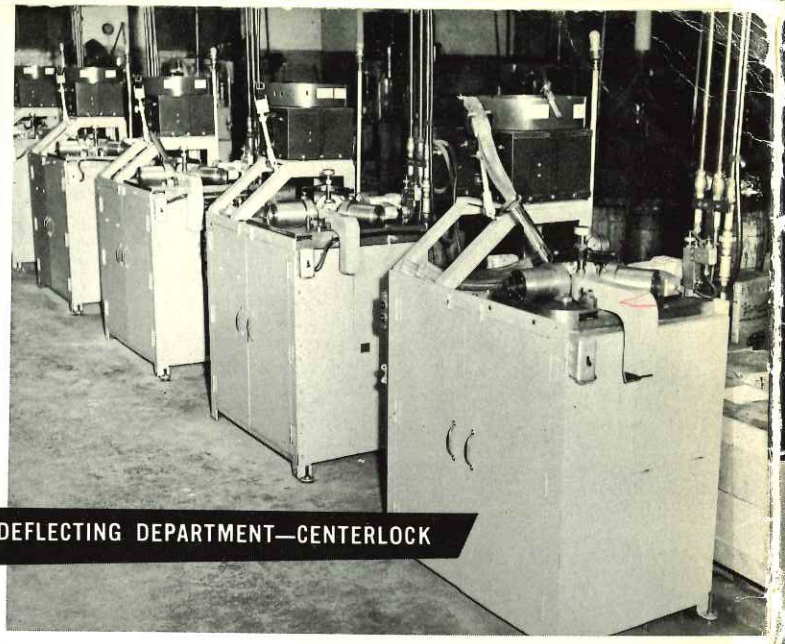
GOLF CARTS

OUTBOARD MOTORS

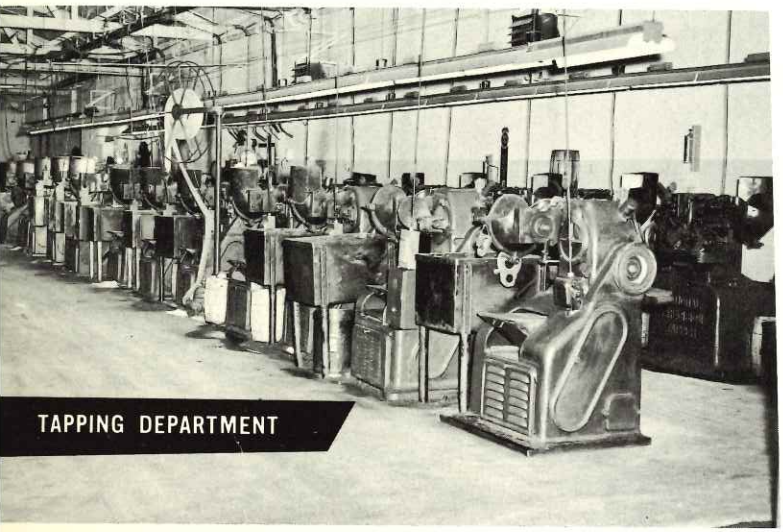
CONSTRUCTION EQUIPMENT

HOME APPLIANCES

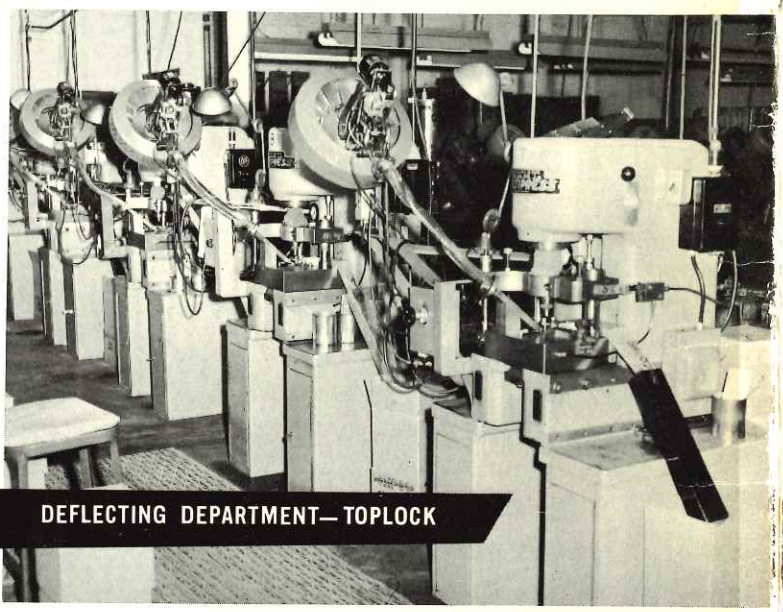
COLD FORMING DEPARTMENT



DEFLECTING DEPARTMENT—CENTERLOCK



TAPPING DEPARTMENT



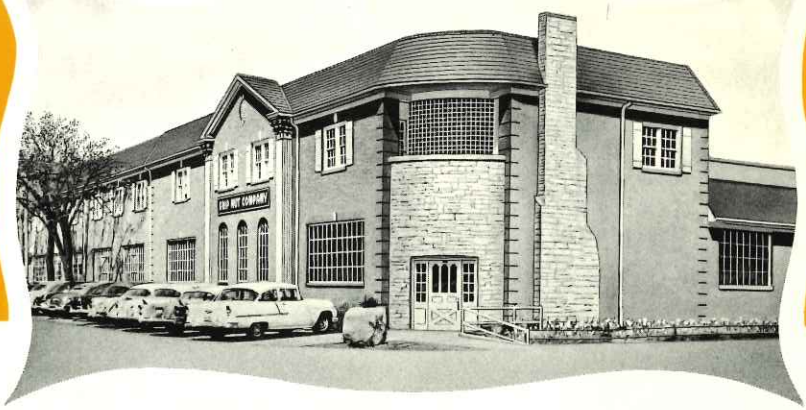
DEFLECTING DEPARTMENT—TOPLOCK

- **Continued growth since 1904**
- **One of the largest Exclusive Manufacturers of Standard and Special Nuts**
- **Equipped to Manufacture over 1¼ Million Gripco Fasteners daily**
- **Plant and office area covers 2½ acres**
- **25 Miles directly west of Fort Wayne**

GRIP NUT *Company*

SOUTH WHITLEY, INDIANA

Phone 723-5111



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